Economic Impacts on Gateway Communities Resulting from the Introduction of Transit in Parks

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Table of Contents

INTRODUCTION 3
PURPOSE OF THE STUDY 4
METHODOLOGY 4
MISSION STATEMENT FOR THE NPS ALTERNATIVE TRANSPORTATION PROGRAM (ATP) 7
OBJECTIVES OF THE NPS ALTERNATIVE TRANSPORTATION PROGRAM (ATP) 7
PUBLIC REACTION TO ATS 8
COMMUTERS AND LOCAL EMPLOYMENT 10
TRANSIT EMPLOYMENT 12
FINANCIAL IMPACTS ON BUSINESSES 12
ECONOMIC DEVELOPMENT IMPACTS 16
FINANCE 25
OTHER LESSONS LEARNED 25

Introduction

Access to and within the national parks, whether by auto, bus, train, carriage, bicycle, or any other means of conveyance, has defined the national park experience for generations of visitors. Although train travel opened up many of the great western national parks to a visiting public, it was the advent of the automobile that would have the most profound effect upon the landscape.

As a newly formed agency at the turn of the 20th century, the National Park Service (NPS) gained its early public support through the provision of efficient access to the parks by roadways and rail systems. Designs of the roadways were sensitive to park resources, with special care exercised in fitting them to the land in an esthetically pleasing way. In the construction of roads, it became clear that roads were much more than a mere necessity of conveyance for movement of people, but that they were an integral, defining feature of the national park experience.

To this day, the location, type, and design of transportation systems and their components (e.g., roads, bridges, trails, and parking areas), and the use of alternative transportation systems (ATS), all strongly influence the quality of the visitor experience. These systems also affect, to a great degree, how and where park resources will be impacted. For these reasons, management decisions regarding transportation facilities require a full interdisciplinary consideration of alternatives and a full understanding of their consequences. Traditional practices of building wider roads and larger parking areas to accommodate more motor vehicles are not necessarily the answer. The National Park Service must find better transportation solutions, which will preserve the natural and cultural resources in its care while providing a high-quality visitor experience.

Depending on a park's size, location, resources, and level of use, the NPS will, where appropriate, emphasize and encourage alternative transportation systems. Alternative transportation generally includes any mode of travel other than the automobile. Examples of alternative transportation systems include buses and shuttles, railroads, vans, trams, trolleys, cable cars, canal boats, ferries, tour boats, bicycles, snow coaches and nonmotorized modes of access to, and moving within, parks. Alternative transportation may also include the application of intelligent transportation systems (ITS) that can serve all modes of transportation. In general, the preferred modes of transportation will be those that contribute to maximum visitor enjoyment of, and minimum adverse impacts to, park resources and values.

An important strategy of the National Park Service is to work cooperatively with other federal agencies, tribal, state and local governments, regional planning bodies, concessioners, citizen groups, and others to design and promote ATS for park access and circulation. Early NPS participation in transportation studies and planning processes is crucial to this strategy and to enhancing partnering and funding opportunities. NPS strives to participate in all transportation planning forums that may result in links to parks or impacts to park resources. Working with federal, tribal, state, and local agencies on transportation issues, NPS seeks reasonable access to parks, and connections to external transportation systems. Park transportation systems should be linked to public transportation whenever feasible, through cooperation with public transportation agencies and gateway communities.

Purpose of the Study

The National Park Service currently has 108 alternative transportation systems at more than 90 park units, ranging from shuttle buses to ferries. In addition, according to the 2001 *Federal Lands Alternative Transportation Systems Study* (also known as the *Section 3039 Study*) of ATS needs in National Parks and other federal public lands, of 169 NPS units evaluated, 118 were found to have current and future ATS needs. Many of these potential new ATS may have an effect on nearby gateway communities, in some cases with gateway communities being directly served by these ATS. The purpose of this study is to examine the economic impacts, both positive and negative, that existing NPS ATS have had on gateway communities. The findings from this study will be used to inform the early planning discussions with gateway communities regarding the potential implementation of ATS in National Parks, and the potential economic impacts that these ATS may have upon gateway communities.

Methodology

In order to better understand the potential economic impacts of NPS ATS upon gateway communities, seven national park units that have implemented ATS were studied. Three of the study areas have well-established ATS, while the other four were only recently implemented.

The seven case studies focused on parks and gateway communities that have recently introduced or substantially expanded transit service. Candidate case studies came from a subset of a list of 90 parks identified by the National Park Service as providing alternative transportation systems (ATS) service in 2002. Through the use of a set of systematic selection criteria, this list was progressively narrowed down to a group of parks having comparable transit service and gateway community characteristics. The case studies were primarily oriented toward distinguishable gateway communities that are largely dependent on parks for their economic vitality. These parks had land-based transit systems (as opposed to parks that can be served only by waterborne or airborne ATS, i.e., ferries or airplanes) that competed with or displaced private vehicle trips. The study focused on parks that used alternative transportation systems to reduce congestion on roads in parks with high visitation.

The case study selection criteria included:

- **Existing ATS service in 2002**. Parks that had no ATS service in 2002 were excluded from the study.

- **Pre-existing public road infrastructure**. Parks that had no or limited public road infrastructure, and were therefore inaccessible by private vehicles, were excluded from the study.

- **Existence of land-based transit service**. Parks that provided only air or water transportation service were excluded from the study.

- **Existence of gateway communities (non-urban environment)**. To help isolate the economic impacts of ATS upon gateway communities, parks located within or near urban areas (population 50,000 or more) were excluded from the study.

- **Over one million visitors annually**. Parks with low levels of visitation and no vehicle congestion were excluded from the study.

- **Orientation toward transit rather than tour service**. Parks with commercial package tours only, and not ATS service, were excluded from the study.

- **Comparison of similar conditions before and after service introduction**. This research concentrated on changes in public transportation that have occurred since the 1990s. Narrowing the scope of research to this time frame controlled for changes in the national economy, levels of visitation, and changes in demographic cohort preferences.

- **Scale of service**. Parks with ATS that did not have a service capacity and frequency sufficient to have a noticeable impact on visitation patterns were excluded from the study.

After applying the progressively restrictive selection criteria noted above to the 385 units in the national park system in 2002, the following seven NPS units remained, and provide the case studies for this research:

- Acadia National Park
- Bryce Canyon National Park
- Cape Cod National Seashore
- Denali National Park & Preserve
- Hot Springs National Park
- Yosemite National Park
- Zion National Park

Although Denali National Park and Preserve reported only 266,521 visitors in 2001, this park remained in consideration because two important factors affected the visitation number. First, the short summer visitor season of parks in Alaska compresses visitation into a limited amount of time. The density of the visitor season could lead to more congested conditions than southern parks having higher annual visitation numbers, but a longer visitor season. Second, visitors to Denali may only enter the park interior by shuttle, bicycle, pack animal or foot.

The seven case study examinations looked at a wide range of impacts that ATS can have upon gateway communities, focusing on economic impacts. In conducting these case studies, local stakeholder groups (town government, local business communities, nonprofit interest groups, parks, and transit operators) were interviewed to help determine the overall impact of park transit on different segments of local gateway communities. Additional information for the case studies came from a combination of public documents, direct observation of how each transit system served its local environment, and archival data on visitation and travel patterns. Table 1 (below) presents summary data on the seven case study areas that were selected.

Table 1: Parks, Gateway Communities & Transit Systems Targeted in this Research

Park Name	Region	Gateway Community	2001 Visits (millions)	One-way Fare	Passengers per Vehicle	Standees	ADA Accessible	Fleet Size (vehicles)	Peak Headway (minutes)	Operating Since	Recent Changes	Transfers to Airport	Serves Community	2001 Ridership	Auto restrictions
Acadia National Park	NER	Bar Harbor, ME Mt. Desert Island	2.5	$0	28	✓	✓	17	15	1999	1999	✓	✓	239,000	×
Cape Cod Nat. Seashore	NER	Provincetown & Truro, MA	4.4	$0 $1	65 27	× ×	× ✓	2 5	15 20	1988 2000	1988 2000	× O	× ✓	Unreported 100,000	✓ ×
Hot Springs National Park	MWR	Hot Springs, AR	1.3	$0	21	✓	✓	3	30	1980	2001	×	✓	4,607[⊕]	×
Bryce Canyon National Park	IMR	Garfield County, UT	1.1	$0	28	✓	✓	15	6	2000	2000	×	✓	400,000	×
Zion National Park	IMR	Springdale, UT	2.2	$0	68	✓	✓	30/21[▲]	6	2000	2000	×	✓	2,128,000	✓
Yosemite National Park	PWR	Mariposa, Tuolumne, Merced, Madera, & Mono Counties, CA	3.4	$0 $2-$20[*]	50 40	×	✓	30 --	5 6/day	1970s 1998	1970s 1998	× O	× ✓	2,700,000 57,569	O
Denali National Park & Preserve	AR	Healy, AK	0.4	$17.50-$33.75[*]	44	×	✓	130	66/day	1972	1990	×	×	~180,000	✓

✓ = Yes, × = No, O = planned; [⊕]Ridership July 11- Sep 28, 2002; [▲]Buses/Trailers; [*]Round trip fare range

Regions: AR=Alaska Region, IMR=Intermountain Region, MWR=Midwest Region, NER=Northeast Region, PWR=Pacific West

Mission Statement for the NPS Alternative Transportation Program (ATP)

To preserve and protect resources while providing safe and enjoyable access to and within the national parks by using sustainable, appropriate and integrated transportation solutions.

Objectives of the NPS Alternative Transportation Program (ATP)

Alternative Transportation Systems (ATS) integrate all means of travel within a park, including transit, bicycle and pedestrian linkages, and automobiles. Regardless of their size or location, parks follow the objectives of the Alternative Transportation Program (ATP):

- **Improving the visitor experience**. ATS reduce congestion on roads and in parking areas. As a result, more visitors can enjoy a quieter and more relaxed time in a park without worrying about finding a place to park their cars.

- **Protecting natural and cultural resources**. ATS reduce air and noise pollution and parking in undesignated areas—protecting wildlife, monuments, and other park resources.

- **Promoting economic development**. ATS promote local tourism by carrying visitors to nearby hotels, restaurants, shops, campgrounds, and recreation areas. What's more, ATS can lead to new jobs as staff is hired to operate and maintain such systems.

- **Fostering strong partnerships**. To develop ATS, NPS works with other government agencies, local communities and businesses, and environmental, historical, and other groups, strengthening these relationships.

- **Enhancing visitor safety and security**. By reducing vehicle traffic and parking along roads and walkways, ATS improve visitor safety.

- **Enabling new services**. ATS help park staff expand visitor interpretive tours and improve the mobility of visitors with disabilities.

Public Reaction to ATS

The National Park Service works with two different publics: the visiting public and local residents.

- For most national parks, the visiting public comes primarily from the region within a one-day drive, and nearby metropolitan areas typically contribute the largest number of people to this public. The visiting public also extends nationally and internationally.

- Local residents include people who live nearby and perhaps have stakes in local businesses (seasonal residents act more like local residents than like the visiting public in many ways). Major park actions, such as the introduction of transit, largely impact the way of life for local and seasonal residents. Local stakeholders include local leaders of government and business, as well as citizens who take an active and involved interest in local affairs.

Either or both of the publics can act as a powerful force for facilitating or blocking transit operations, so public reaction to transit influences the ultimate impact of park transit systems and their degree of success in achieving their goals, such as economic growth.

Perceptions of Gateway Communities during the Planning Stages of ATS

Common to newly implemented park transit systems examined in this research, local residents declared they initially held reservations about how transit would fit their communities. They were not certain it would work in their environments… "not until we saw it running." Communities around Zion and Acadia had no substantial local experience with transit, so dedicating the substantial resources needed for startup required a leap of faith and a willingness to take a risk on the part of local residents who depend on tourists enjoying their experience when they visit. Transit systems for both of these parks and communities hit a few minor bumps during startup, as could be expected, but local residents' appreciation and enthusiasm for the systems grew. Acadia's field operational test of intelligent transportation systems (ITS) received similar skepticism and an equivalent reception in this study's findings and in other research. In this case, education of the local public on what the system could do and how it could help its customers use the system would have helped gain support at start-up.

As public reaction changes, so goes general support of systems. Citizens form opinions to express to their elected representatives, and elected representatives vote on the resources to allocate back to the transit systems. Where perception problems exist, transit system organizers need to address them. Communities with no prior experience with transit will often have reservations, so information on the experience of other parks and gateway communities can be helpful in correcting incorrect perceptions. Where people perceive inconsistency, communication is a necessity. Overall, transit proponents need to take public reaction seriously and address it as an important facet of transit planning. Education and dissemination of information offer the best means of helping both the local and visiting publics understand and respond favorably to service design and operations. As understanding grows for well-designed and managed transit systems, public support will grow, as well.

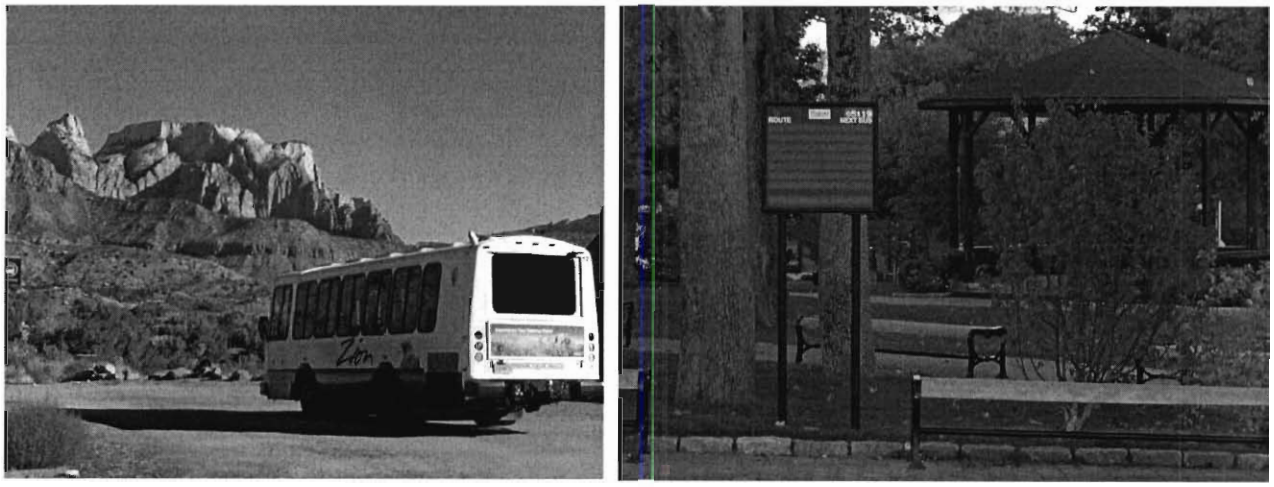

Figure 1: People living near Zion (left) and Acadia (right) could not imagine how transit and intelligent transportation systems would fit in their communities until they saw them running in local contexts.

The question of transit's impact on business surprised many participants in interviews in this research, but it also deeply interested them. People tended to have limited awareness of the issues associated with the economic impacts of transit on gateway communities. Many people had not considered what impact transit had had on their businesses, but reflection helped them to derive some answers or realize what they had observed as changes occurred in the way visitors dealt with local businesses.

Perceptions of Gateway Communities after ATS Have Been Implemented

For the different case study environments, local opinions of transit varied after the first few years of service.

- Community representatives around both Zion and Acadia National Parks expressed widespread and enthusiastic support of local transit initiatives, calling them necessary congestion mitigation and positive additions to local visitor experience.

- In Hot Springs, a stakeholder responsible for communications to tourists reported that people do not think the trolley is important and that it is not a key selling point for tourism. On the positive side, people consider the trolley serving Hot Springs equally appealing across all demographics. This attitude toward the trolley stands in contrast to the image of regular bus transit in that city, which residents perceive as appealing only to the low-income population.

- Whereas the operator of Yosemite's YARTS system reports strong and loyal ridership, local residents perceive the buses always run empty of passengers. Several factors might contribute to this perception. The physical design of the buses does not allow easy viewing of passengers from the streets. With tinted windows and seats high off the ground, passengers might not be easy to see, particularly physically small passengers like children. Furthermore, the depot for the YARTS system is located in Merced at the furthest location from Yosemite National Park, whereas some of the bus runs start or end

in Mariposa, roughly halfway between Yosemite and Merced. Drivers routinely drive empty buses... a practice called deadheading… between the start or end point of their routes and the depot. From the street, these deadheading buses look like a failure of the system to attract riders, so the general public holds the negative opinion that the bus system attracts no riders.

- Where Bryce Canyon had (and to a large degree still has) local support for transit service, the local community now has a sense of a lack of consistency in policy. Transit service initially started with several routes and a dedicated parking facility, but financial difficulties forced cuts in the service. The transit operator reduced route coverage in the park. The dedicated parking facility went in service for the first years, went out of service one year, and went back in service the next year. These inconsistencies arose in response to the changing financial situation. Adjustments to service will happen with any system, but transit system organizers at Bryce Canyon have had to deal with more than the typical number of changing circumstances. In this situation, open communication must occur to explain to the public what has changed in the situation, the decision criteria used to choose a response, and the response chosen.

Commuters and Local Employment

Interviewees in several case studies reported that even though the shuttles were intended for tourists, local residents use the buses for all types of trips, including journey-to-work trips. This travel behavior should be encouraged because it helps reach identified goals of transit: it reduces traffic congestion and its associated safety hazards, frees parking spaces that would otherwise remain full all day, and reduces air and noise pollution. Understanding the benefits of using park transit for commute trips, some transit system organizers are working to develop the commuter ridership base. The YARTS system outside Yosemite, for instance, had commuter ridership on par with visitor ridership in the early years (when the National Park Service and concessioner employees received free commuter passes) and a smaller, but steady, commuter ridership since late in 2001 after concessioner employees stopped receiving free passes (Figure 2).

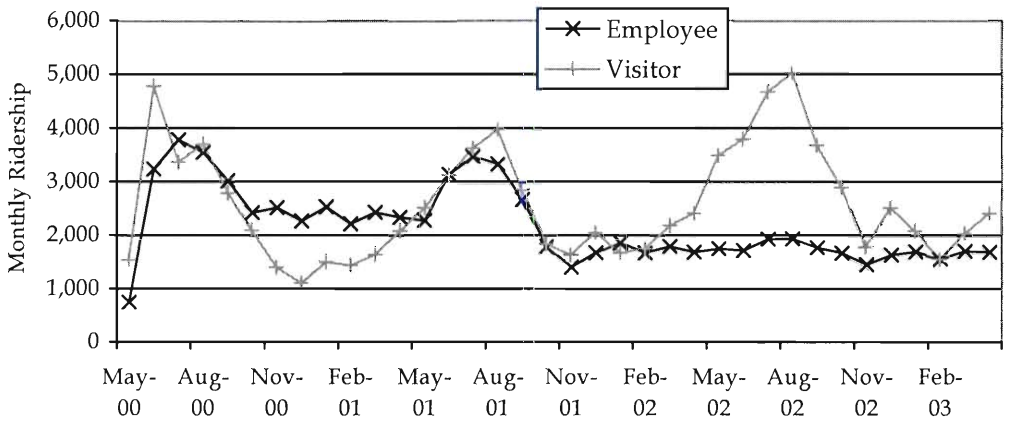

Figure 2: For YARTS service at Yosemite, commuters comprise a substantial portion of total ridership.[1]

Understanding the benefits of using park transit for commute trips, some transit system organizers are working to develop the commuter ridership base.

- At Cape Cod National Seashore, many of the seasonal employees of the region cannot afford the cost of housing on the outer cape, so particularly foreign seasonal employees without private vehicles live in campgrounds during the summer season and depend on shuttle service for access to jobs.

- Planners for the Island Explorer at Acadia National Park feel that developing commuter ridership will reduce the number of workers' cars parked all day outside employment centers, freeing parking for visitors and mitigating the overall parking problem. Several stakeholders see potential there for developing express bus service to major local employment centers at peak commute times.

In all of these cases, transit system organizers are acting on the sense that the development of commuter ridership will indirectly benefit visitors and park resources, even if commuter ridership directly serves the local population (permanent or seasonal) in gateway communities, rather than park visitors or even employees of the National Park Service and its official concessioners.

ATS also produces a societal benefit: it provides access to jobs for people who do not own or drive private vehicles. Gateway communities appeal to two primary demographic groups with potentially limited mobility: retirees and students. Both of these groups gravitate toward seasonal work in or around parks. Notably, elderly and young drivers also pose the greatest safety risks on roads, so creating communities where these groups do not need private transportation can benefit society in multiple ways.

[1] *Yosemite Area Regional Transportation System (YARTS) Short-Range Transit Plan.* Draft. 2004-2009. August 4, 2003.

Transit Employment

Undeniably, new transit service opens new opportunities for employment in transit operations, but transit in parks seems to run a spectrum of appeal for potential workers. Buses need drivers to operate them, mechanics to maintain them, and managers to dispatch and handle them. Driver wages relative to local areas vary from park to park. Similarly, some transit operators readily find employees, while others have difficulty amassing a workforce.

- In the case of Zion, the surrounding area had few residents with commercial driver's licenses or skills for driving buses. The transit operator assumed the responsibility of training drivers in the local community. As an incentive, drivers' wages, which were set based on a federal wage rate, surpassed the county average. Despite the seasonal nature of most of the jobs created, 60 positions at an above-average wage in a town of 391 people make a substantial impact on local employment. The transit operator has low employee turnover and tight competition for every position that comes available.

- Drivers for the Bryce Canyon Shuttle gained benefits beyond training and licensing. The transit operator recruited these drivers off-season to serve the 2002 Winter Olympic Games in Salt Lake City, Utah.

- After receiving federal wages for roughly two decades, bus drivers in Denali National Park took a pay cut when park administration privatized the service. Drivers unionized in response.

- The transit operator for the shuttle outside Cape Cod National Seashore has always paid market wages, but people find market wages do not cover living expenses on Cape Cod in the summertime. The operator has difficulty finding drivers, and shuttle reliability consequently suffers.

Overall, park transit operators are providing employment in gateway communities, and most operators demonstrate sensitivity to trying to concentrate the benefit of their employment offerings to the gateway communities.

Financial Impacts on Businesses

Business owners generally felt that shuttles do not directly affect their businesses, and they had no further information on existing or potential benefits that businesses could realize.

- Retail stores give mixed reactions overall. Some shop owners say that the shuttle bus has hurt business. Other stores have shown no performance change in their business.

- The visitation pattern in and around Zion has changed such that people stay in the park through lunch hour, rather than going into town to eat. Therefore, restaurants and retail shops in town have lost business at midday. However, the dinner crowd has grown and now occurs later in the evening. Some restaurants see the increase in the dinner crowd as an economic benefit because the larger meals at dinner bring in more revenue.

- Several potential opportunities appear to have emerged for entrepreneurs in the service industry. At Zion, the case study analysis revealed that new business opportunities have opened in service industries:

  - **Pet boarding** has arisen as a primary need in the area. Pets are not allowed on shuttle buses, but many people visiting parks have pets in their private vehicles. Hotel rooms that allow pets book quickly. Other visitors are looking for pet boarding services. Springdale has no pet boarding businesses, so visitors are referred to services in nearby Rockville or in Saint George.

  - The Park recognizes another potential entrepreneurship opportunity for short term **personal storage**. Storage businesses in convenient locations would allow people to buy souvenirs, stow their packs, and put picnic equipment in a safe place, so visitors would not have to carry these items on the shuttles or on the trails. Storage businesses can replace the lost convenience of a trunk on a private vehicle.

  - **Delivery service** outside the park for goods bought inside the park has not been successful. Many of the purchases made come as an impulse buy, and the additional coordination necessary for the purchase adds too much complication to the sale.

  - With the reduced traffic on the canyon road, interest in bicycling has grown in popularity. Bicyclists no longer need to dodge high volumes of private vehicles, and shuttle bus drivers are trained to have a heightened awareness of cyclist safety. The expanded opportunity for bicycling has also expanded entrepreneurial opportunities in **bicycle rentals and service**. The National Park Service recognizes the need to provide infrastructure in the park and on buses to support cycling activities.

  - Initially, one entrepreneur anticipated a booming business of **towing and impounding** illegally parked vehicles, but demand for towing has not grown. The nearest tow truck is garaged in Saint George, 46 miles (74.1 km) away from Springdale; this arrangement appears sufficient at present.

  - **Tour bus operators** could face direct competition from the shuttle service, but local leaders feel that tour companies offer a different type of product. Many of them take people from park to park, and these tours provide interpretation en route. Shuttle bus drivers give little interpretation of Zion Canyon, though the park has started offering limited bus trips in the morning with full interpretation by a park ranger. Reservations for the free ranger-interpreted tours fill quickly.

  - Presumably, local transportation providers should have a new opportunity to provide **connecting service**. For instance, local taxi operators or limousine services could market transportation service from the airport in Saint George (or even Las Vegas or Salt Lake City) to Springdale for a vacation without the hassle

of renting a car. Local leaders questioned the viability of such coordination; however, such opportunities will likely grow with the planned relocation and expansion of the Saint George Airport in 2008. Economic developers in Saint George hope to use the new facility to attract jet service to the area to fly more people directly to the region, rather than through major city airports.

- Some local leaders see the need and opportunity for **more activity offerings**. Entrepreneurs in the community can seize the opportunity of changing visitation patterns associated with the introduction of transit to expand the range of activities in the area. The town's mission statement calls for the development of artistic, cultural, and historic expression. If the town creates more activity offerings along these lines or in other pastimes that tourists would enjoy, local business might reach the goal of enticing visitors to stay an extra night or two in town, particularly if visitors are already getting accustomed to the idea of spending more time in the park and in the area, as a result of transit service. Zion recently prohibited tubing down the Virgin River inside the park, which greatly reduced demand for tube rentals. That new void shows that people would be engaged in recreational opportunities if they were available. Local entrepreneurs need to take the initiative to generate ideas and offer new services to expand tourist activities.

- The **lodging industry** reports no noticeable change in business based on the shuttle. Guests generally have many questions about the shuttle system for people at hotel registration desks; at the end of the day, guests generally give positive feedback on the service. If people spend more time on trails in the park because they are not pushed through the park for lack of parking spaces, lodging business owners hope to realize an increase in the length of stay for their guests.

The prevailing sentiment in stakeholder interviews also held that automobile traffic levels had not improved with the operation of the shuttle. Several people said that with traffic at the same level, the shuttle has merely increased the capacity of the town to handle tourists. Traffic data support this hypothesis; however, the overall reasoning does not follow a logical progression. If traffic levels remain steady while the shuttle brings more people to town, then unless spending patterns have drastically changed, the increase of visitors in town must also increase revenue for town businesses; furthermore, local chambers of commerce have found they can use the Island Explorer as a selling point to convince people to visit the area (perhaps particularly for foreign tourists from transit-oriented societies, who as noted earlier are thought to spend more money than domestic tourists), which suggests that transit increases the potential customer base for local businesses.

- Many businesses, such as lodges and restaurants, report that they operate at full capacity in the summer season of July and August when shuttles traditionally run. If the businesses already operate at capacity, shuttle service cannot attract new customers. It can only help businesses in the peak season if they raise their rates, which could be seen as a disbenefit to visitors, or if businesses can find a way to increase their capacity to serve more customers. Shuttle service might make more of a difference in shoulder

seasons, when lodges have extra rooms and visitors can choose where they spend their money based on the services they value.

- With half of the people arriving in the Denali area by train, a new car rental business has experienced unexpected growth. The business started as a means of letting a few seasonal employees run errands on weekends, but demand quickly grew as tourists expressed a desire to see more in the area than the national park where the buses would take them.

- Another effect relates to the central decision-making of bus operations at Denali. For people going into the national park, a simple snow shower on the unpaved road can stop all operations for a day, which sends almost the full complement of intended passengers into the local area and local shops.

Private Transportation: Tour Buses

Most transit supporters and planners feel that shuttle service poses no competition to the private transportation industry. Transit system organizers generally see shuttles as a different type of service because they provide transportation with no interpretation of local attractions, whereas tour service offers the product of local knowledge and research.

Tour bus operators tell a different story. They see visitors using shuttles to get tours, and they say that shuttle drivers answer visitors' questions, just as tour interpreters do. On the other hand, tour bus operators recognize that transit service relieves vehicle crowding to allow more people to visit. In some cases, private operators cannot determine if the difference between lost customers and expanded customer base produces a net positive, negative, or neutral effect on the bottom line.

To protect tour bus operators, some shuttle services reserve some service only for private access. As examples, you must use private transportation to access Cadillac Mountain in Acadia and Provincetown's airport outside Cape Cod National Seashore.

Financial Impacts on Concessioners Inside Parks

In addition to potential impacts on businesses in nearby communities, park transportation systems may have an impact on concessioners operating inside parks.

- The concessioner at Zion National Park experienced a reduction in retail sales because people did not want to carry souvenirs on hiking trails.

- The retail concessioner at Hot Springs reports that roughly a quarter of its customers arrive by trolley.

- The experience of one park does not necessarily indicate what will happen at all other parks.

Economic Development Impacts

The importance of economic development extends beyond local gateway communities. In many cases, states depend on national parks to attract large portions of state tourism revenue. Hot Springs National Park stands as the largest tourism attraction for Arkansas. Similarly, the region around Acadia National Park accommodated 28 percent of all people who took overnight marketable pleasure trips to Maine in 2001.[2]

Several gateway communities have found ways to use transit service as a means of promoting economic development for local areas. These economic development initiatives have taken many forms, such as creating new ways to attract tourism dollars, directly working to meet business needs, or allowing growth within local development policies geared toward protecting environmental and community character.

- On the east side of Yosemite National Park, Mammoth Lakes acts as a tourism destination of its own, but local entrepreneurs have connected with the YARTS system as a means of extending the amount of time visitors spend in the area. The trip from Mammoth Lakes to Yosemite takes two hours in one direction, but resort community marketers are selling the idea of a day trip to the park on the shuttle with a return to Mammoth Lakes for another night at a local lodge and a meal in local restaurants.

- Even though local leaders and economic developers around Hot Springs National Park emphasized in interviews how little impact the trolley has had on their community and local economy, this alternative transportation clinched a deal to attract a major employer to the area. The developer of an amusement park, Magic Springs, would only agree to locate outside Hot Springs if the City would guarantee trolley access.

- Beyond attracting new markets and employers, shuttle systems provide potential for expansion of existing businesses where local regulations or conditions prohibit further growth. Outside Acadia, minimum parking requirements do not allow businesses to expand beyond the capacity of their current parking lots, and environmental concerns limit the appeal of expanding parking. Transit creates a means of reducing parking requirements for businesses with bus access.

- Whereas many small gateway communities grew along road corridors and local leaders cannot imagine anything other than access solely by private vehicle, commercial development around Denali has demonstrated that complete gateway communities can emerge where at least half of all tourists travel without private vehicles. In a canyon immediately outside the entrance to the park, a cluster of businesses has risen with large lodges, restaurants, gift shops, and service industries.

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[2] Bobbinchock, Len with editor Chris Strong. "Acadia National Park," *National Parks, Transportation Alternatives and Advanced Technology for the 21st Century*, conference proceedings from the Big Sky Ski and Summer Resort, June 3-5, 1999.

Land Use and Businesses Served

Transit system design must comprehensively meet all mobility needs of visitors. Failing to connect to one leg of a visitor's journey will likely put that visitor in a private vehicle for the entire day, which will reduce the intended impacts of the transit system.

Transit systems can also serve the needs of local businesses. Acadia's Island Explorer planners tied part of the route structure to businesses who made financial contributions to the system. The opposing concern of equity might call for smaller businesses that cannot contribute financially to have equal transit access, so they have access to visitors equal to the access larger businesses have. A transit system requires a balance of financial responsibility and some consideration with regard to serving all businesses fairly.

The responsibility for reaching all businesses does not rest solely with the transit system organizers. From the moment that parks and communities seriously entertain the idea of implementing transit service, local community leaders need to think how to design their own land use for transit-oriented development. Buses have a difficult time serving long highways with strip development of commercial establishments, but transit works well with clusters of businesses where visitors can walk from business to business and meet in a central location to board the bus.

Local communities contribute to the ability of transit to serve local businesses. Planning guidelines can highlight the need to develop with alternative transportation in mind. Local politicians, planners, chambers of commerce, and individual businesses must all take the initiative to make transit access easy, safe, and appealing for visitors.

Figure 3: Local development affects how well and efficiently transit can serve local businesses and attractions. Buses can more easily serve the clustered development outside Denali (bottom) than the linear low-density development on Cape Cod (top).

Regional Connections

- The most seamless transportation system will accommodate visitors from the time they enter a park region until the moment they leave. This seamlessness means that transit service must connect with major transportation hubs in park regions.

- When visitors to parks pay a daily rental rate on a private vehicle, they typically want to drive it. If they never rent the vehicle, parking and traffic problems can subside, and

visitors will not feel anxious about leaving a vehicle far from where they engage in activities.

- Not all parks have large, convenient regional transportation hubs that transit system organizers can target.

ATS Partners and Stakeholders

In statements of official policy, the National Park Service has identified and responded to the need to work in partnership with stakeholders involved in projects with external effects that cross park boundaries. Transit in parks falls in this category because of its obvious connection to communities when buses cross park boundaries. Less obvious manifestations of partnerships, such as joint financing schemes and contributions of space for parking, can have an even more profound impact on the development of shuttle service. In the case studies, local stakeholders should typically held influential roles in decision-making for the shuttle services (Table 2).

Table 2: Local Stakeholder Groups Targeted for this Study

Local Group or Sector	Possible Representatives
The business community	Chambers of commerce Tourism agencies Park concessioners
The local population	Elected representatives Town managers
Local economic development planning	Town planning departments Planning commissioners
Transit operations	Transit operators
Park administration	Park superintendence Concessioner liaisons
Nonprofit organizations	Friends groups Natural history associations
General local knowledge	Varied titles

Through partnerships, transit system organizers have gained local input on service design, public support, and financial contributions. Acadia and Zion have appeared in numerous publications as role models for partnering.[3,4] Stakeholders in the case study for Cape Cod also emphasized the strength of partnerships surrounding the Provincetown-Truro Shuttle. Local stakeholders understand that Cape Cod National Seashore can most easily contribute capital for purchasing buses, whereas the Seashore turns to local communities for their abilities to provide a revenue stream for covering operating costs. Defining needs and understanding what contributions each

[3] Bobbinchock, Len with editor Chris Strong. "Acadia National Park," *National Parks, Transportation Alternatives and Advanced Technology for the 21st Century*, conference proceedings from the Big Sky Ski and Summer Resort, June 3-5, 1999.

[4] Shea, Patrick. "Shuttle Service in National Parks: Reducing Congestion and Improving the Tourist Experience," Guidebook for Change and Innovation at Rural and Small Urban Transit Systems, Transit Cooperative Research Program (TCRP) Report 70, Transportation Research Board, National Academy Press, 2001.

partner can make helps these partnerships pull together all of the pieces necessary to create a seamless service appealing to visitors.

The degree of true partnering between parks and community leaders of the full range of stakeholder interests does appear to have a determining role in the extent of acceptance of shuttle systems among local residents and visitors, which in turn affects the ultimate success of shuttle systems in attracting ridership and achieving the goals established for transit service and their associated impacts.

Communication

Although related to partnering, communication encompasses a larger spread of information. It involves educating and keeping informed not only the people designing the system, but also the people using the system (visitors) and the people who interact with the people using the system (local businesses, front-line workers, and local citizens). Communication plays a vital primary role in shaping public reaction. If people do not know about transit service, they will not use it. If they get confused trying to use the service (particularly if they end up at the wrong place or miss appointed times because of confusing schedules), the public will react negatively to it. In the case studies, local opinion already generally favored shuttle systems, but improved communication and education for local businesses and visitors will help promote shuttle use.

Many of the needs and opportunities in the case studies relate to communication. To expand visitor use of transit, local employees who interact with the public need training to know how to respond to questions about transit service. To help make the system more visitor-friendly, visitors need several forms of media to tell them about it.

Communication with the Visiting Public

Many transit operators and planners do not understand the powerful impact of communicating the basic facts of transit service. Glacier National Park recently made minor changes to its low frequency hiker shuttle service, including posting schedules at bus stops. Ridership doubled. **People need to know about and understand service before they will be willing to use it**.

Tourism industry market researchers monitor the best ways to disseminate information to the visiting public, and parks often include in visitor use surveys questions about what sources people use to plan their visits to parks. Typical media include travel guides, tour books, park web pages, and web pages about gateway communities and area businesses**. Once visitors arrive in the local area, they refer to such sources as local tourist publications, visitor centers, chambers of commerce, and local residents, so information in all of these locations needs to be accurate and up to date.**

Communication with the Local Community

Transit system organizers need to use multiple means of reaching out to local residents and businesses to disseminate information. Potential means for communicating with local communities include:

- **Pre- and early season orientation sessions** for all seasonal employees who interact with the public, whether employed in parks, with concessioners, or by local businesses should

teach people serving the public how to answer questions about how to get around the park and the town.

- **Web sites and local newspapers** should post strategic planning, milestones, and reports about shuttle service, so the local public knows what to expect in terms of service changes and development.
- **Transit representation at town and chamber of commerce meetings** provides another essential means of communicating transit service strategies beyond the planning partners to the local public affected by the system.
- **Published bus schedules** need to be widely distributed among local establishments, so local employees have information readily available to answer visitors' questions. As a side benefit, the wide distribution of bus schedules also contributes to shuttle presence in visitors' eyes.

Communication with the local public requires redundancy of efforts. No one medium will reach all local residents, so multiple forms of media must be used to spread the information.

- At Bryce Canyon, local residents expressed frustration at lack of consistency in operations. Local businesses also have no sense, knowledge, or guidance for how to use the shuttle to create local economic gain.

- Employees around Acadia felt they knew too little about the system to provide personal information or perspective.[5]

Any change to the alternative transportation system or service needs to be communicated well before the change takes place.

Overlapping Communication Issues

Some communication issues target the media, the visiting public, and local communities. Local citizens frequently visit parks as the general visiting public, and the information that goes to local citizens often disseminates to the general public.

- Denali has faced a situation where local business owners perceive that the concessioner, which operates both tour buses and shuttle service, will push visitors to choose a more expensive bus tour when they call for telephone reservations. The concessioner says it addresses this concern by offering different telephone numbers for the shuttle and tour reservations, but the local businesses either do not know about this precaution, or they do not consider it effective. Either way, **at Denali, the concessioner could gain more support from local businesses by providing better information about the reservation system to local businesses, to the general visiting public, or both**.

- One communication conflict observed at Acadia surrounded the advertising of the system. At Acadia, soon after service inception, some businesses said they would like to

[5] Daigle, John J. and Lee, Byung-kyu. "Passenger Characteristics and Experiences with the Island Explorer Bus: Summer 1999," National Park Service New England System Support Office technical report NPS/BSO-RNR/NRTR/00-15, December 2000.

see the planning committee do more publicizing.[6] Meanwhile, the planners designed different plans. With demand regularly reaching or exceeding capacity, marketing efforts were purposely limited.[7] Although the objectives of different stakeholders might contradict each other, such discrepancies should be openly communicated, so the stakeholders can reach consensus, or at least understanding, on what happens in the present and how to address different stakeholder needs through strategic planning. If left unspoken, these discrepancies can fester and result in an adverse effect on the system.

Communication and education are vital components to making shuttle systems produce benefits for visitors, parks, and businesses, and case study parks have shown that the interrelation of different aspects of communication requires attention. **Providing the necessary attention requires the allocation and dedication of transit planning resources to communication strategies that move beyond partnering. The largest need for public relations and publicity comes right at the startup of a shuttle system**. Notably, knowledge of transit service in parks and in gateway communities will never carry over to the same degree of familiarity with public services that can be expected in non-resort communities. However, the more communication that occurs, the better the relationships will be, making the ATS more successful.

Intelligent Transportation Systems (ITS)

Real-time information regarding bus departures might help many park shuttle systems overcome difficulties associated with low-frequency routes. Surveys of transit riders have shown that people will consult schedules whenever buses depart at intervals greater than ten minutes.[8] **The real-time information of GPS-equipped buses gives confidence in the reliability of transportation**.

- At Cape Cod, where buses frequently fall behind schedule due to traffic congestion or other factors, such technology could help employees accurately report their expected arrival time and could help visitors make travel plans for activities that require punctuality, such as golf tee times or dinner reservations. Experience with Acadia's Island Explorer has demonstrated that visitors respond to technology and make travel choices accordingly, as evidenced in the 2002 survey of visitors that showed **that 80 percent of bus riders made the decision to ride at least in part due to seeing signs with real-time bus departure information**.[9]

- Acadia's transportation technology has not had full local support. Businesses around Acadia had initially scoffed at the technology before seeing survey results showing that

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[6] Daigle, John J. and Lee, Byung-kyu. "Passenger Characteristics and Experiences with the Island Explorer Bus: Summer 1999," National Park Service New England System Support Office technical report NPS/BSO-RNR/NRTR/00-15, December 2000.

[7] Clement, Stephanie. "Trip Report for Stephanie Clement, Conservation Director: Grand Canyon, Zion, Bryce Canyon, and Yosemite National Parks Transportation Study Tour 5/20/01 – 6/03/01" draft report for Friends of Acadia, July 10, 2001.

[8] *Transit Capacity and Quality of Service Manual*, Part 5: Quality of Service, Transit Cooperative Research Program project A-15A draft update of the first edition accessed December 22, 2003. http://transit.kittelson.com/part5.pdf

[9] Daigle, John and Zimmerman, Carol. *Acadia National Park ITS Field Operational Test: Visitor Survey*, prepared by Battelle for the U.S> Department of Transportation ITS Joint Program Office, February 10, 2003.

visitors find it useful. Even with such information, the chamber of commerce representing the business community voiced objection to advertising the technology because potential visitors might associate it with traffic congestion and make other vacation plans. Addressing the skepticism and concerns requires public education, communication, and attention to public portrayal of the technology.

- Denali has plans to fix cameras on wolf dens, eagle nests, and other unique areas of ecological interest, such that a bus arriving near a targeted area will respond to a sensor and broadcast the camera feed onto a monitor in tour buses.

Service Identity and Visibility

Visitors need to feel the presence of well designed park transit systems wherever they go. This presence appears in the form of infrastructure, frequent and identifiable buses, and media about the shuttle. Visibility makes visitors aware of the system and instills confidence that transit will take them where and when they want to go.

The public often perceives that buses are used primarily by people with low incomes. However, parks like Acadia National Park use buses that visitors find appealing, and buses at Zion National Park feature pictures of local flora and fauna that make their buses distinctive. In order to get visitors out of their cars, the visual look and feel of a park bus must appeal to visitors.

Figure 4: Yosemite's YARTS buses have an identity crisis with several different appearances.

Frequency of buses factors into the issue of vehicle and service identity because visitors notice if they see several buses approach a stop in a short period of time. With high frequency, visitors quickly learn to trust that another bus will come for them within a short period of time. Intelligent transportation systems can also provide a sense of presence, with real-time message signs or countdown systems providing visitors with a sense of confidence regarding the next expected bus arrival.

Media

The spread of information about shuttle service also helps to establish a system identity. If people see or hear something about transportation service everywhere they turn, they will come to recognize and discuss it. Information can appear in a number of media. Web site advertising, radio announcements, and other technology currently spread information regarding many of the shuttle systems. However, park newspapers are often the primary source of shuttle information, though some transit systems have separate brochures dedicated to information on transit as well.

Distribution of print materials creates presence. If the print materials appear at hotel reception desks, visitor center kiosks, restaurant counters, and store cash registers, then information regarding transportation options is widely available to tourists. Visitors also see the level of local

support for the shuttle. A display of information amounts to a degree of endorsement, and visitors unfamiliar with an area often take recommendations from local residents on the best way to experience the area. Outside of Zion National Park, visitors can find information about the shuttle in most businesses, and local businesses credit increases in town ridership to the campaign to spread information. In contrast, Hot Springs has limited distribution points for trolley information. Yosemite's YARTS does not publish maps for visitors to see how the system fits into the geography of the area, and only a fraction of local businesses provide and display information on the shuttle. Both of these latter two systems have reputations for limited visitor ridership.

Finance

The finance of transit systems affects all stakeholders involved. The extent of financing that is available determines the extent to which transit systems meet ridership demand goals and reach the destinations and businesses that need to be served. Financing also determines the presence and visual identity of the systems in the eyes of potential users. The process of finding and allocating finances in a world of limited resources largely determines which impacts will be felt most strongly and which objectives receive highest priority.

Most park transit system organizers must look to a number of different funding sources to cover costs. The typical funding structure used to provide transit in cities does not work in the case of parks because the federal government allocates transportation dollars according to resident population sizes. A town the size of Springdale, Utah, outside Zion National Park (population 391) cannot obtain the same financial resources as a metropolitan city of 50,000, even though Springdale handles 2.5 million visitors annually. While Congress is now reviewing proposals for funding transit in parks, existing systems must creatively acquire funding through multiple sources.

The American Public Transit Association (APTA) reports the average fare box recovery of reporting transit systems is roughly one-third of the operating cost of providing service, which means that fares alone cannot support transit. In rural areas, the average fare box recovery is typically even lower. Any discussion of transit finance must begin with an underlying understanding that transit service requires a subsidy, and money spent on that subsidy is purchasing a degree of performance against established goals, such as maintaining less than a two-percent increase in traffic volumes on Mount Desert Island's most congested roads outside Acadia, achieving a certain percentage reduction in auto emissions to improve air quality, reducing the number of registered complaints about parking availability, or raising the number of wildlife sightings near park roads.

Other Lessons Learned

Business Impacts

- Some demand has shifted away from the retail sector toward service industries for visitors. Lodging and restaurant owners would like to see transit help people decide to stay in the local area

longer, but no evidence of this behavior has yet developed in the early years of these case-study transit systems.

- Overall, it appears that businesses with front-door bus service will feel economic benefits most during shoulder seasons when visitor activity slows and visitors can choose where to spend their money based on amenity, rather than concerns of no vacancy.

- Private vehicle restrictions at Zion changed visitor spending patterns, redistributing where and when people spend money.

Public Reaction

- Despite the identified benefits that transit has brought to gateway communities, most stakeholders admitted they held reservations about the idea of a shuttle until they saw it running in their own communities.

- Stakeholders expressed skepticism over the usefulness of intelligent transportation systems, although survey results have found that the general public quickly understands the technology and finds it useful for traveling in a recreational area.

- Better dissemination of information will make tourists more comfortable with the idea of visiting park regions and riding shuttles.

- When weighing the goals of transit, the needs and attitudes of local stakeholders must be considered in the planning process.

Ridership & Visitation

Visitation Impacts

- Data do not indicate that tourists stop visiting parks with private vehicle restrictions

- Data from the case study parks indicate no clear effect of transit on visitation. The mere presence of transit fails to predict visitation trends, and many other external factors appear to have had a stronger effect on the fluctuations of visitation.

Local Trips

- Where some transit routes specifically serve gateway communities and connect to routes serving park destinations, a core ridership has appeared. In these case studies, this core ridership represented a small proportion of total visitor trips, which indicates that most people still travel by private vehicle; visitor access to gateway community businesses has, therefore, changed little.

- Private vehicle restrictions raise ridership far above the ridership of parks without private vehicle restrictions.

- Each gateway community can have a different standard of success in terms of total ridership and the ratio of ridership to visitation. In some instances, stakeholders expressed strong satisfaction in systems with relatively low ratios.

Rider Characteristics

- Recreational vehicle travelers readily park and ride shuttles.

- Foreign tourists readily ride the bus, compared to domestic visitors.

- Commuting employees can provide a consistent base ridership year-round, and removing employee cars from local roads lowers traffic congestion at peak times while freeing parking spaces for the entire day.

- Each gateway community can have a different standard of success in terms of total ridership and the ratio of ridership to visitation. In some instances, stakeholders expressed strong satisfaction in systems with relatively low ratios.

- Recreational vehicle travelers readily park and ride shuttles.

- Visitation numbers indicate no impacts from the simple presence of transit.

- Foreign visitors, recreational vehicle drivers, and people arriving at parks without a private vehicle readily ride park transit.

- Private vehicle restrictions raise ridership far above the ridership of parks without private vehicle restrictions.

Traffic Impacts

- Mitigating traffic problems in one location might simply displace them to another location. Transit as a mitigating measure must work in conjunction with other aspects of a comprehensive transportation plan.

- Even if transit does not reduce traffic congestion, it might prevent an increase in traffic.

- Fixing some traffic problems might result in the emergence of others. Addressing traffic congestion and traffic safety requires comprehensive analysis.

Parking Issues

- Parking strategies have affected local economies and park budgets in terms of infrastructure construction cost, site purchase or lease, operating costs for routing buses to parking areas, economic opportunity for businesses served (or not served) by transit, parking fee revenue, parking enforcement revenue, and opportunity costs for visitors who choose to avoid areas with insufficient parking availability.

- Even if all tourists to national parks take transit, parking must exist somewhere to handle the vehicles that visitors use to reach the parks. The strategy chosen for a private vehicle parking plan will affect the way that visitors interact with the shuttle system and with local businesses.

- Each parking strategy has strengths and weaknesses. A dedicated staging area offers a secure place to leave vehicles, restroom facilities, and general information on the park. On the downside, a staging area defeats one of the well-documented benefits of transit: where people change modes of transportation, commerce has an opportunity to develop. People are far less likely to get off a bus for the purpose of buying a trinket than they are to stop in a store while they are waiting for a bus after they get out of their cars. With no businesses around a dedicated staging area, the isolation curtails potential economic benefits to the gateway community.

- The strategy of using parking throughout gateway communities for park-and-ride space, for example at lodging and other businesses, offers less central control and oversight than in a dedicated staging

area, but this type of integrated parking strategy has important advantages. From an economic standpoint, the integrated parking strategy makes more sense both in terms of contract cost reduction and in terms of supporting local businesses. Commercial development occurs naturally where people change modes of transportation, as evidenced by hotels and restaurants near airports and the historic development of metropolises along the coasts at major ports. Putting shuttle parking near businesses encourages people to wander into businesses while waiting for the bus or after they get off the bus. Impulse-oriented businesses can do particularly well in such settings. For instance, someone waiting on a hot day might be inspired to buy an ice cream or fudge, whereas, the same person might not feel inspired to make a photocopy or send a fax. The integrated parking strategy also offers an environmental benefit because it does not require people to drive private vehicles from their hotels to the staging area. Especially in areas with air quality concerns where every vehicle start exacerbates a pollution problem, parking plans should consider the philosophy of leaving cars parked at hotels and recreational vehicles (RVs) parked at campgrounds.

- Because introducing transit in gateway communities changes parking patterns, changes to parking revenue as a source of local income can also be expected to occur.

System Design & Service Planning Issues

- The design of bus stops has received differing levels of attention.

- Bus stops in recreational communities with travelers unfamiliar with the area need to make transit service intuitive (i.e. a bench and shelter indicates where the bus stops, and the location of the shelter indicates the direction of the bus route).

- Flag stops, while appropriate in some specific situations, receive little use by bus passengers and provide less potential customer traffic to businesses on bus routes than fixed stops do.

- Heavy peak seasonal demand for recreational transit have implications on service provision and the ability to meet visitor needs.

- Public service provision of transit, as opposed to private bus service, eliminates market forces for service improvement.

Financial Issues

- Experience has shown that visitors who present annual passes in lieu of park entrance fees will not willingly pay transportation fees.

- Philanthropy has proven highly effective in some situations for providing a foundation for transit finance. Establishing substantial philanthropic contributions requires several years of planning.

- The National Park Service has made strong contributions of capital funds for infrastructure and rolling stock, but many case study parks had no means for establishing a plan for replacement of rolling stock.

- The National Park Service has a difficult time planning for operating funds because no ongoing funding mechanism currently supports transit in parks.

- Notably, some businesses have demonstrated that they support the goals of transit and might even be willing to absorb financial losses for the larger goals. One tour bus operator declared that after thirty years of business operations, he had seen a decline in his profit margin when the shuttle service started; however, he supports the shuttle as a necessary aspect of stewardship of the national park he serves.

- A subsidized public sector should not compete with private operators.

- Taxpayers might not want to assume costs willingly assumed by the private sector.

Environmental Issues

- Zion National Park officials are trying to reduce the noise of diesel tour buses with a policy requiring bus drivers to turn off the engines of idling buses. Transit system organizers have discussed requiring tour passengers to ride the propane shuttle buses inside the park instead of the diesel tour buses.

- People familiar with the long-standing bus service in Denali National Park say more visitors see wildlife there because traffic volumes do not scare animals away from the road, and animals

have learned not to fear buses because drivers keep passengers on board when animals approach.

Safety

- When Zion replaced the 2,000 private vehicles per day driven by tourists looking at scenery with bus drivers specifically trained with an eye toward safety and an awareness of pedestrians and bicyclists, bicycle use on the Canyon Road increased as a consequence.

- A stakeholder in the Yosemite transit planning process raised the concern of disaster recovery: does the rural area around the park have sufficient emergency resources to handle the situation if a bus is involved in an accident and there are a large number of injured?

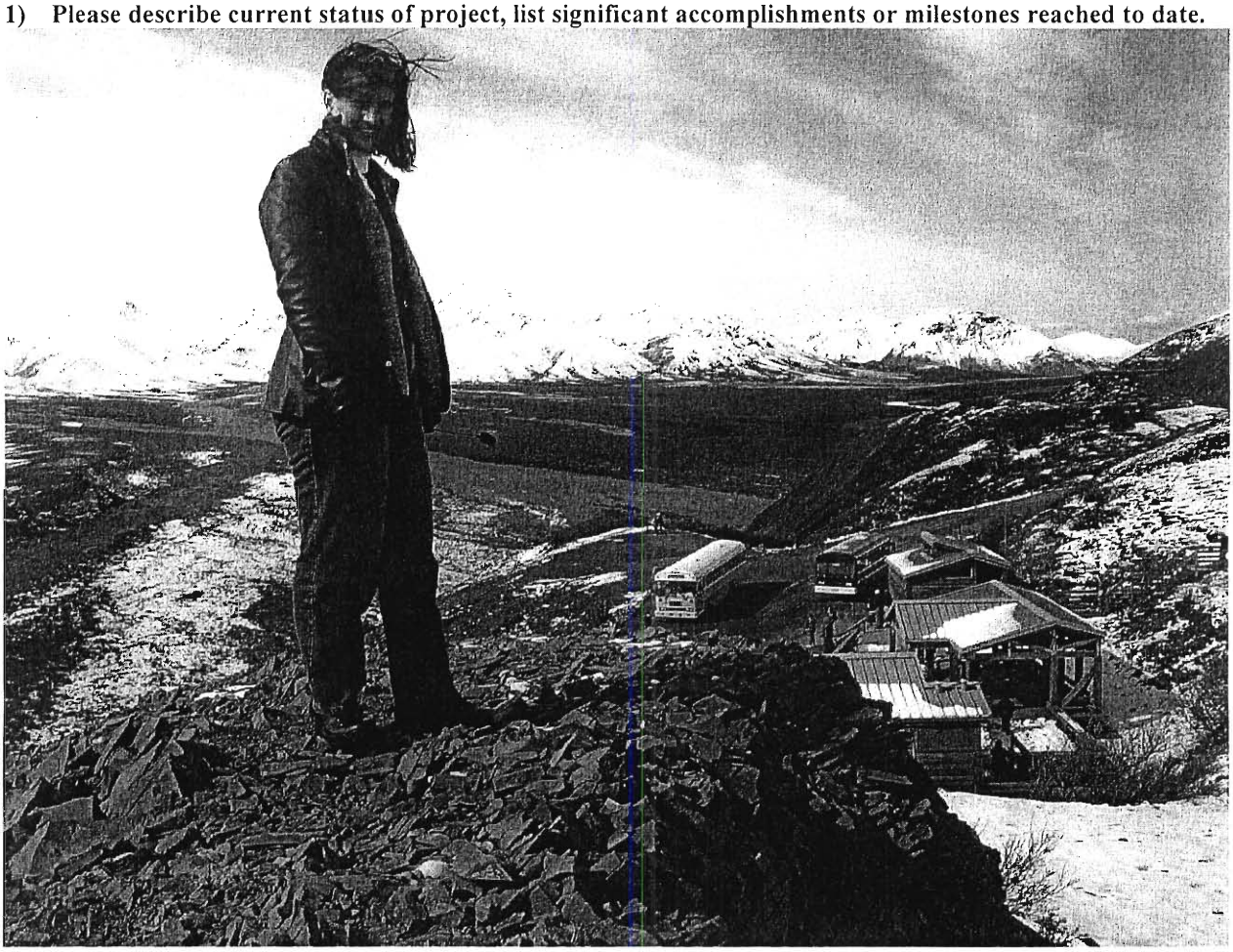
E-20-H83
N/A

ECONOMIC IMPACTS ON GATEWAY COMMUNITIES RESULTING FROM THE INTRODUCTION OF TRANSIT IN PARKS

The purpose of the study is to produce two primary products: (a) case study reports that indicate what local economic impacts have occurred as a result of the implementation of alternative transportation systems in national parks and (b) a methodology that the National Park Service (NPS) can use for analyzing similar situations in the future. Also, the research will serve as the basis for a doctoral dissertation by Anne Dunning at the Georgia Institute of Technology (Georgia Tech). Anne has been receiving advisory support from Professor Michael Meyer of Georgia Tech and from Dr. Stewart Butler at the Volpe National Transportation Systems Center (Volpe) on behalf of the National Park Service.

Interim Status Report (July 2003 – December 2003)

1) Please describe current status of project, list significant accomplishments or milestones reached to date.



From a perch at the rest stop for Polychrome Overlook in Denali National Park in Alaska, Anne Dunning observes shuttles, tour buses, and passenger behavior.

With the major data gathering phase of site visits completed in June, the entire thrust of the project has turned to analysis and writing. The writing phase represents the culmination of a year of data gathering from academic literature, as well as from primary data gathering in site visits and community interaction.

In an effort to save time and money, Rocky Mountain National Park was removed from the list of case studies and site visits. In the initial discussions of case study parks, the National Park Service and Volpe had recommended

saving Rocky Mountain as the last case study. As the one selected park with no transit service stopping in the gateway community, this case study would be the best one to exclude if one needed to be excluded.

Report status:

Chapter 1: Introduction	Written and submitted
Chapter 2: Context and Literature Review	Written and submitted
Chapter 3: Case Study Selection & Methodology	Written and submitted
Chapter 4: Case studies	
Zion	Written and submitted
Acadia	Written and submitted
Bryce Canyon	Writing in progress
Hot Springs	Site visit conducted and data gathered
Yosemite	Site visit conducted and data gathered
Cape Cod	Site visit conducted and data gathered
Denali	Site visit conducted, data not forthcoming
Chapter 5: Discussion of Results	Writing in progress
Chapter 6: Recommendations	Mostly written
Chapter 7: Conclusion	To be written
Appendix A: Sectors derived from NAICS and SIC Codes	Written and submitted

After administrative follow-up to the extensive travel required for site visits in the spring, the month of July concluded with full project efforts devoted to writing to submit the methodological literature review for this research to the Transportation Research Board. The literature review has been slotted for presentation at the annual TRB conference, and Anne Dunning been placed on a panel.

Session 538	Presentation	Hilton	Tuesday, January 13, 3:45 PM–5:30 PM
Session 569	Panel	Hilton	Tuesday, January 13, 7:30 PM–9:30 PM

With literature collected over the course of a year, the literature review made a logical choice for paper submission. Case study site visits had just concluded at the time of paper submission, and most of the analysis and writing still needed to occur; therefore, the August 1st paper deadline would have required a premature release of case study results if field findings had been reported. Case study results can go into next year's TRB portfolio.

In August, attention turned to formalizing and finalizing the first three chapters of the report, which establish the context and structure of the study. The first three chapters and Appendix A came as a result of a year of collection of background information on the topic of transit in parks and economic impact analysis, as well as discussions with Georgia Tech faculty, Volpe, and the National Park Service regarding the appropriate sites to study and methodology to use in analyzing those sites. These sections of the report went to committee review at Georgia Tech in late August, and the doctoral committee met to discuss them in mid-October.

September and October were invested mostly in analysis and writing for Acadia, which is a 50-page case study including data from 30 different sources. Several research studies have focused on Acadia and the Island Explorer in recent years. The Island Explorer has also benefited from a local professional transportation consultant, who established data collection procedures for performance monitoring of several aspects of the system. With a rich source of survey and monitoring data, Acadia and the Island Explorer allowed a richer and deeper exploration of the impacts of transit than will be possible in other case studies.

The early and middle parts of fall semester also involved revisions to the first three chapters, based on the comments of the doctoral committee and the Transportation Research Board. The methodological literature review underwent review from eight highly regarded experts in transportation and parks before it ever went to review by Volpe.

In November, Volpe received several report products from Georgia Tech:

- Chapter 1: Introduction
- Chapter 2: Context and Literature Review
- Chapter 3: Case Study Selection & Methodology
- Acadia Preliminary Site Report
- Appendix A: Sectors derived from NAICS and SIC Codes

The analysis and writing stages of a project do not appear exciting from the outside. No communities are visited, anecdotes are rarely generated, and no product appears until the product has polish. On the other hand, these stages, when given the proper amount of effort and time, produce meaningful new insights, creative perspective, and comprehensive understanding. As you read the final products of these efforts, you will see highly polished and extensive analysis revealing new knowledge and areas of consideration regarding the impacts of transit.

Next Steps

Based on interaction with the National Park Service and Volpe, efforts on this project will next produce a discussion of results from all case studies. This report will bring a synthesized understanding of unique and common impacts occurring in parks from transit, which will help the National Park Service plan its multi-year agenda for developing transit in parks. This discussion of results will go to Volpe by mid-December.

With full analysis going into each case study write-up, case study reports are estimated to take an average of three to four weeks. The Acadia case study took much longer due to the rich data resources available for extensive analysis of the impacts of the Island Explorer. No other case studies are expected to require 50 pages and multiple months. Cape Cod and Yosemite will be complex in terms of capturing the political interactions and relationships of multiple gateway communities, but less research has been conducted on the associated transit systems than had been on Acadia's Island Explorer, so not as many sources will need to be woven together.

2) Has the institution obtained any additional outside support as a result of this grant for this project? (Source of support and amount, include in-kind support)

No.

3) Has there been any volunteers assisting with this project? Please provide amount of volunteer hours and number of volunteers/groups.

No.

4) How many visitors have benefited from this project?

N/A

5) Has the institution produced a press release or hosted a press event? Please provide a copy of all media materials generated.

No.

6) Has the institution experienced any delays? How do you plan on overcoming this hurdle?

With the focus of the project shifted from data collection to analysis and writing, few delays can affect the project now outside of the time needed to generate and review the report. Most parks, communities, and transit operators have willingly participated in this study and contributed data; however, Denali National Park expressed reservations about sharing ridership data, citing protection of the concessioner's private business data. Another phone call will be made to renew the request for data. With the shuttle serving as the only practical means of public access to the interior of these Alaskan federal public lands, shuttle ridership data should be considered part of the public realm.

7) **Identify any problems encountered or looming. Please state if your project is still progressing as stated in the initial timeline. If a delay has occurred, please let NPF know. (If the problem is one NPF might be able to help solve, call and we'll do our best).**

The last progress report raised a question on the issue of finance. Georgia Tech and the National Park Service had discussed the possibility of an additional three months of funding. To facilitate progress based on the academic calendar, Georgia Tech funded Anne Dunning, the primary researcher working on the project, as a teaching assistant for the fall semester of 2003, as she simultaneously worked on the park transit project. A similar alternative funding strategy is planned for spring 2004 to take the project to completion. Georgia Tech has requested an extension of contract for time to write the final case studies and report sections. Canceling the Rocky Mountain site visit, has reduced both costs and time on the project.

8) **Please explain any interesting anecdotes or quotes of significant incidents or showing community response or attitudes toward the project. Anecdotes of significant incidents or events that provide an insight into the value of the project or that convey a sense of the commitment or character of the people involved are valuable and always welcome.**

With the research now beyond site visits and in the writing stages, no new anecdotes and community responses are generated. All interesting findings are appearing in the report products.

Swatting the famous Alaskan mosquitoes, Anne Dunning asks about the 30-year history of local experience with transit from a veteran shuttle driver at Wonder Lake en route to the commercial area of Kantishna in Denali National Park.